

What Is Claimed Is:

1 Claim 1. A computer comprising

2 a central processing unit;

3 a bus;

4 memory; and

5 a graphics accelerator including:

6 a texture value generating circuit for pixels describing a triangle,

7 and

8 a cache storing texels used in generating texture values.

1 Claim 2. A computer as claimed in Claim 1 in which the texels for  
2 generating texture values for a complete polygon are prefetched to the  
3 cache during triangle setup.

1 Claim 3. A computer as claimed in Claim 1 in which ~~in which~~ texels  
2 for generating texture values for a pixel are fetched to the cache on  
3 demand.

1 Claim 4. A computer as claimed in Claim 1 in which the cache  
2 includes a controller providing a policy for replacing texels in the cache.

1 Claim 5. A computer as claimed in Claim <sup>4</sup>1 in which the policy for  
2 replacement of texels depends on whether pixels sufficient to generate  
3 texture values for a polygon fit into the cache.

1 Claim 6. A computer as claimed in Claim <sup>4</sup>1 in which the policy for  
 2 replacement of texels depends on whether texels have been used in  
 3 generating texture values for a last scan line of pixels.

1 Claim 7. A method for generating texture values for pixels defining a  
 2 polygon to be displayed by a computer output device comprising the  
 3 steps of:

4 determining pixels defining a polygon,

5 generating texture coordinates for each pixel defining a polygon,

6 caching texels to be used in generating texture values for each pixel  
 7 defining a polygon, and

8 generating texture values for each pixel defining a polygon using texels  
 9 which have been cached.

1 Claim 8. A method as claimed in Claim 7 further comprising retaining  
 2 texels which have been cached until no longer needed for polygons for  
 3 which pixels have been determined.

1 Claim 9. A method as claimed in Claim 7 further comprising replacing  
 2 texels which have been cached when no longer needed for polygons for  
 3 which pixels have been determined.

1 Claim 10. A method as claimed in Claim 7 in which the step of caching  
 2 texels to be used in generating texture values for each pixel defining a  
 3 polygon includes prefetching all texels required to generate texture  
 4 values for a polygon.



1 Claim 17. A graphics accelerator as claimed in Claim 16 in which the  
2 policy for replacement of texels depends on whether texels sufficient to  
3 generate texture values for a polygon fit into the cache.

1 Claim 18. A graphics accelerator as claimed in Claim 16 in which the  
2 policy for replacement of texels depends on whether texels have been  
3 used in generating texture values for a last scan line of pixels.

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